

ABSTRACT

A solar collector (200) is provided having increased efficiency and reduced cost over conventional collectors. The collector includes an array (218) of substrates (202A, 220B) each having a substantially planar surface with a photovoltaic cell (208) formed thereon. Generally, the array (218) includes at least first and second substrates (202A, 220B) oriented at an angle (α) relative to each other, and to a direction of propagation of light received on the surface of the first substrate such that light reflected from the first substrate is reflected onto the surface of the second substrate, thereby increasing efficiency of the collector (200). The efficiency of the collector (200) varies inversely with the angle between the first and second substrates (202A, 220B) for angles between 140° and 20° . Preferably, the surfaces of the substrates (202A, 220B) are shaped and oriented relative to one another to form part of a concave inner surface of a polyhedron (242, 246) or geometric figure defined by three or more planar sides.